

ETUDE DES TRANSFORMATIONS STRUCTURALES ET DES PROPRIETES MECANIQUES DANS LES SOUDURES D'ALLIAGE D'ALUMINIUM 7075 TRAITES THERMIQUEMENT REALISEES PAR LE PROCEDE DE SOUDAGE TIG

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Abstract : By comparing the welds of an alloy of aluminum 7075 realized by the technique of soldering TIG with those of the same alloy after heat treatments, we notice an improvement of the mechanical properties of hardness; the values in HAZ have relatively increased with regard to the other zones of the welds. The microstructural state was modified; this can be attributed to the combination of heat cycles and treatments. Heat treatments have preserved relatively the microstructural and mechanical properties in the 3 essential zones of the weld. The facieses of break in the various zones show that the break was ductile set apart in the melted zone where the break was mixed (ductile-fragile) The characterization of the microstructure requires the use of techniques of investigation (optical microscope and electron microscope with sweeping) for local approaches, and the indexation of the phases by diffraction (x rays) for global approaches, it also requires the use of impact strength test to estimate the quality of the weld.

Keywords : aluminum alloy 7075, TIG welding, microstructure, impact strength, heat treatments